orifices.—Léon **Bloch**: Optical resonance in the magnetic field.—A. **Leduc**: The determination of the ratio γ by means of the velocity of sound. A discussion of the values of the ratio of the two specific heats of gases and vapours obtained from experimental determinations of the velocity of sound. The author concludes that the values of γ thus obtained are generally inexact.—N. **Arabu**: Studies on the tertiary formations of the basin of the Sea of Marmora.—Henry **Hubert**: The distribution of rain in western Africa.—Henri **Coupin**: The morphogenic action of increased salinity on the marine bacteria. Increasing the salt percentage in the culture media of marine bacilli increases the length of the organisms and in some instances transforms them into true Spirillæ.—Robert **Sorel**: Wounds received in battle and the sun cure. A list of cases cured in the Alexandra Hospital at Monte-Carlo by sun treatment.—Maxime **Ménard**: The radioscopic localisation of foreign bodies by the method of Hirtz.

CALCUTTA.

Asiatic Society of Bengal, April 7.—P. **Brown**: A preliminary note on the prehistoric cave paintings at Raigarh. These were originally discovered on the rock-surface of a shallow cave in the State of Raigarh, Central Provinces, by Mr. C. W. Anderson, of the B.N. Railway, in 1910. This note is the result of a visit to the caves in March, 1915, by the author and Mr. C. W. Anderson. Certain geological evidences were obtained on the occasion, such as agate implements, etc., which have been submitted to the Geological Survey for investigation. The cave containing the paintings is apparently only the ruin of a much larger excavation. At some remote age the entire front must have fallen in, thus hermetically sealing up the cave and preserving the drawings. At a much more recent date the débris which had thus closed up the opening broke away and slipped another stage down the cliff, exposing the remains of the paintings to view. The paintings are mainly hunting scenes, and in some instances bear a remarkable resemblance to the cave paintings at Cojul in Spain, which are said to be 50,000 years old. In the technique there is also a striking similarity to some of the "cross lined" pottery of prehistoric Egypt. The paintings are evidently of very great antiquity, probably older by thousands of years than any other paintings yet discovered in India.—J. **Evershed**: Sun-spots and prominences.—W. **Burns** and S. H. **Prayag**: Grafting the mango-inflorescence. Starting from the observation that the inflorescence of *Mangifera indica*, L., often becomes partly or wholly vegetative, a phenomenon already studied by Burkill and Bose, the authors give an account of experiments on the artificial production of mixed inflorescences by grafting an inflorescence either on a vegetative branch or on another inflorescence, the grafted inflorescence either dying after the ripening of the fruit which it bears or sometimes persisting and producing vegetative axillary branches.—M. O. Parthasarathy **Iyengar**: Observations on the defoliation of some Madras trees. The author takes as his starting point the observation that, in Madras, trees do not remain in a leafless condition during the period of drought, but produce fresh leaves during the latter period, and he concludes that, in the case of Madras trees, the leaf-fall is not due to the failure of water-supply, but possibly due to the necessity of a replacement of the old by fresh, physiologically more efficient leaves, the greater efficiency of the latter being due to their cuticle being less permeable to water, to their stomatal mechanism being more perfect, to their being less charged with excretionary matter and less clogged by dust, and to greater vitality. The fall of the older leaves may also be caused by successful competition of the growing young leaves for supply of materials. The author also directs attention to the fact that prolonged wet weather may cause trees to shed their leaves. He deals in greater detail with a group of trees—called by him the Odina group—which remain in a leafless condition for a considerable length of time, and which flower while in the leafless condition. Defoliation due to salt-laden sea-breezes is referred to, and a number of special cases are considered in greater detail.—P. F. **Fyson**: Note on the flora of the South Indian Highlands. The region considered comprises those parts of the Nilgiri and Palney Hills which rise above the 6500-ft. level. Forty-five per cent. of the 430 indigenous phanerogamic species are endemic in South India and Ceylon, 17 per cent. are shared with the Khasia Hills, 12 per cent. occur also in the temperate Himalayas, and 9 per cent. are Chinese and Japanese.—W. F. **Smeeth**: The geological history of southern India. A general account of the geology of Mysore.—H. C. **Das-Gupta**: Palæontological notes from Hazara. In this paper the author has described a few fossils obtained from the Triassic, Jurassic, Gieumal, and Tertiary beds of Hazara, and these fossils include one new species of Corbula (*C. middlemissii*), and another new species of Nautilus (*N. hazaraenois*).—H. V. **Nanjundayya**: Some aspects of ethnographic work.

BOOKS RECEIVED.

The Earth: its Life and Death. By Prof. A. Berget. Translated by E. W. Barlow. Pp. xi+371. (New York and London: G. P. Putnam's Sons.) 7*s*. 6*d*. net.

The Principles of Fruit-Growing. By L. H. Bailey. Twentieth edition. Pp. xiv+432. (New York: The Macmillan Co.; London: Macmillan and Co., Ltd.) 7*s*. 6*d*. net.

Fly-Fishing: Some New Arts and Mysteries. By J. C. Mottram. Pp. xii+272. (London: The *Field and Queen* (Horace Cox), Ltd.) 5*s*. net.

Improved Four-Figure Logarithm Table. By G. C. McLaren. Pp. 27. (Cambridge: At the University Press.) 1*s*. 6*d*. net.

The Golden Bough. By Sir. J. G. Frazer. Third edition. Vol. xii. Bibliography and General Index. Pp. vii+536. (London: Macmillan and Co., Ltd.) 20*s*. net.

The Complete Science of Fly Fishing and Spinning. By F. G. Shaw. Pp. xiii+432. (London: The Author, Neville Court, Abbey Road, N.W.) 21*s*.

Tropical Diseases Research Fund. Report of the Advisory Committee for the Year 1914. Pp. iv+248. (London: H.M.S.O.; Wyman and Sons, Ltd.) 2*s*. 3*d*.

New Zealand. Department of Mines. N.Z. Geological Survey. Palæontological Bulletin, No. 2. Revision of the Tertiary Mollusca of New Zealand. By H. Suter. Part i. Pp. v+64+plates. (Wellington, N.Z.: J. Mackay.)

Papers and Proceedings of the Royal Society of Tasmania for the Year 1914. Pp. 112. (Hobart: Royal Society.)

Land and Freshwater Mollusca of India. Supplementary to Messrs. Theobald and Hanley's Conchologia Indica. By Lieut.-Col. H. A. Godwin-Austen. Vol. ii. Plates cxxxiii–clviii. Vol. ii. Part xii. December. Pp. 311–442. (London: Taylor and Francis.) 25*s*.

Practical Physical Chemistry. By J. B. Firth. Pp. xii+178. (London: Methuen and Co., Ltd.) 2*s*. 6*d*.

Index to Periodicals. Compiled by various authorities and arranged by A. C. Piper. Vol. i. April–September, 1914. Pp. xxxii+192. (London: Stanley Paul and Co.) 21*s*. net.

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Bacon's Contour Atlas. Lancashire and Yorkshire edition. Pp. 41. South Wales edition. Pp. 41. North England edition. Pp. 41. (London: G. W. Bacon and Co., Ltd.) Each 6*d.* net.

Infant Mortality. By Dr. H. T. Ashby. Pp. ix+229. (Cambridge: At the University Press.) 10*s.* 6*d.* net.

A First Geography of the British Isles. By W. M. Carey. Pp. vi+169. (London: Macmillan and Co., Ltd.) 1*s.* 6*d.*

Haeckel's Frauds and Forgeries. By Prof. J. Assmuth and E. R. Hull. Pp. 104. (London: B. Herder.) 6*d.* net.

Combinatory Analysis, by Major P. A. MacMahon. Vol. i. Pp. xix+300. (Cambridge: At the University Press.) 15*s.* net.

The Medical Annual, 1915. Pp. cxx+830. (Bristol: J. Wright and Sons, Ltd.; London: Simpkin and Co., Ltd.) 10*s.* net.

DIARY OF SOCIETIES.

THURSDAY, May 13.

Royal Society, at 4.—Election of Fellows. At 4.30.—The Development of the Thymus, Epithelial Bodies and Thyroid in the Vulpine Phalanger (*Trichosurus vulpecula*): Elizabeth A. Fraser and Prof. J. P. Hill.—Some Observations on the Development of the Thymus, Epithelial Bodies and Thyroid in Phascolarctos, Phascolomys and Perameles: Elizabeth A. Fraser.—Measurement of the Specific Heat of Steam at Atmospheric Pressure and 104·5° C., with a Preface by Prof. H. L. Callendar.—Thermal Properties of Carbonic Acid at Low Temperatures. II.: C. F. Jenkin and D. R. Pye.

Royal Institution, at 3.—The Movements and Activities of Plants: Prof. V. H. Blackman.

Royal Society of Arts, at 4.30.—Indian Trade and the War: Sir C. H. Armstrong.

Iron and Steel Institute, at 10.30.—A Selection of: Diffusion of Carbon in Iron: F. W. Adams.—Supplementary Notes on the Forms in which Sulphides may exist in Steel Ingots. II.: Prof. J. O. Arnold and G. R. Bolsover.—Researches on Iron, Silicon and Carbon Alloys: G. Charpy and A. Cornu.—Corrosion of Iron in Aqueous Solutions of Inorganic Salts: Dr. J. A. Newton Friend and P. C. Barnet.—(1) Relative Corrodibilities of Gray Cast Iron and Steel; (2) Note on the Removal of Rust by means of Chemical Reagents: Dr. J. A. Newton Friend and C. W. Marshall.—Communication on the Heating of an Open-hearth Furnace by means of Tar: Dr. A. Greiner.—Sound Steel Ingots and Rails: Sir R. A. Hadfield and Dr. G. K. Burgess.—The Nature of the A_2 Transformation in Iron: K. Honda.—Brinell Hardness and Tenacity Factors of a series of Heat-treated Special Steels: Dr. A. McWilliam and E. J. Barnes.—Thermo-electric Properties of Special Steels: A. M. Portevin and E. L. Dupuy.—Stress-strain Loops for Steel in the Cyclic State: Dr. J. H. Smith and G. A. Wedgwood.—Detection of Burning in Steel, and Iron, Carbon, and Phosphorus: Dr. J. E. Stead.

FRIDAY, May 14.

Royal Institution, at 9.—The Archives of Westminster Abbey: Rev. E. H. Pearce.

Iron and Steel Institute, at 10.30.—A Selection of Papers mentioned above.

Royal Astronomical Society, at 5.—Measures of Double Stars: E. Doolittle.—The Mechanics of Spiral Nebulæ: S. Brodetsky.—Note on Schjellerup's Discussion of the Occultations in the Amalgest: J. K. Fotheringham.—The Irregular Movement of the Earth's Axis of Rotation: Contribution towards the Analysis of its Causes: Sir J. Larmor and Col. Hills.—Note on the Solution of Hill's Equation: Sir J. Larmor.—A Method of Solving Spherical Triangles, etc., by the Use of a Simple Table of Squares: H. H. Turner.—The Short Period Variable RR Lyræ: C. Martin and H. C. Plummer.—Preliminary Discussion of Three Year's Observations with the Cookson Floating Zenith Telescope: H. S. Jones.—The Greenwich R—D System: W. G. Thackeray.—*Probable Papers*: A Determination of the Systematic Motions of the Stars from their Radial Velocities: A. S. Eddington and W. E. Hartley.—The Serious Effect of Suspension on the Rate of a Watch: J. J. Shaw.—Dates of Maximum of S Herculis: T. E. R. Phillips.

Institution of Mechanical Engineers, at 8.—The Distribution of Heat in the Cylinder of a Gas-engine: Prof. A. H. Gibson and W. J. Walker.

Malacological Society, at 8.—A Dibranchiate Cephalopod (Plesioteuthis) from the Lithographic Stone of Bavaria: G. C. Crick.—Description of a New Species of Zingis from British South West Africa: J. R. le B. Tomlin.—Diagnosis of a New Species of Dyakia: G. K. Gude.

Physical Society, at 8.—Precision Resistance Measurements with Simple Apparatus: E. H. Rayner.—Some Novel Laboratory Experiments: F. W. Jordan.—Electrically Maintained Vibrations: S. Butterworth.

SATURDAY, May 15.

Royal Institution, at 3.—Advances in the Study of Radio-active Bodies: Prof. F. Soddy.

MONDAY, May 17.

Royal Geographical Society, at 3.—Anniversary Meeting.

Victoria Institute, at 4.30.—Weights and Measures of the Hebrews: Prof. R. S. Kennedy.

Aristotelian Society, at 8.—Synthesis and Complexity (Bergson): Miss K. Costelloe (Mrs. Stephen).

Royal Society of Arts, at 8.—Foodstuffs: Dr. D. Sommerville.

TUESDAY, May 18.

Royal Institution, at 3.—Advances in the Study of Radio-active Bodies: Prof. F. Soddy.

Royal Statistical Society, at 5.

Royal Anthropological Institute, at 8.15.—Who were the Cliff-dwellers?: Dr. J. O. Kinnaman.

Illuminating Engineering Society at 8.15.—*Discussion*: Some Points in connection with the Lighting of Rifle Ranges.

WEDNESDAY, May 19.

Royal Meteorological Society, at 4.30.—The Wet English Winter of 1914–1915: Dr. H. R. Mill and H. E. Carter.—Report on the Phenological Observations for 1914: J. E. Clark.

Royal Society of Arts, at 8.

Royal Microscopical Society, at 8.—The Male Genital Armature of the Dermaptera: Dr. Malcolm Burr.

THURSDAY, May 20.

Royal Society, at 4.30.—*Probable Papers:* The Corpuscular Radiations Liberated in Vapours by Homogeneous X-Radiation: H. Moore.—The Absorption in Lead of γ Rays Emitted by Radium B and Radium C: H. Richardson.—The Application of Interference Methods to the Study of the Origin of Certain Spectrum Lines: T. R. Merton.

Royal Institution, at 3.—The Movements and Activities of Plants: Prof. H. Blackman.

Institution of Mining and Metallurgy, at 8.

Aeronautical Society, at 8.30.—Wilbur Wright Memorial Lecture—The Rigid Dynamics of Circling Flight: Prof. G. H. Bryan.

FRIDAY, May 21.

Royal Institution, at 9.—Beauty, Design, and Purpose in Foraminifera: E. Heron-Allen.

SATURDAY, May 22.

Royal Institution, at 3.—Colouring Matters of Nature: Dr. M. O. Forster.

CONTENTS.

PAGE

Physical Constants. By **Dr. J. A. Harker, F.R.S.** 281
The Preservation of Wild Life in America. By **R. L.** 281
Four Dimensions. By **G. B. M.** 282
Three Botanical Books 283
Our Bookshelf 284

Letters to the Editor:—

Ultra-Violet Excitation of the D Line of Sodium.—**Hon. R. J. Strutt, F.R.S.** 285
The Green Flash.—**John Evershed, F.R.S.** 286
The Larger Ions in the Air. (*With Diagrams.*)—**Prof. J. A. Pollock** 286
Similitude in Periodic Motion.—**Prof. Herbert Chatley** 288
A Simple Direct Method for the Radius Curvature of Spherical Surfaces. (*With Diagram.*)—**Prof. Will C. Baker** 288
House-Flies as Carriers of Disease. (*With Diagrams.*) 289
The Resurrection of Babylon. (*Illustrated.*) By **Rev. Dr. C. J. Ball** 292
Science and Invention. (*Illustrated.*) By **Edwin Edser** 294
The Government and Chemical Research 295
Sir William R. Gowers, F.R.S. 296
Notes 297

Our Astronomical Column:—

Meteors from Halley's Comet 300
Comet 1915*a* (Mellish) 301
The Australian Solar Observatory 301
Photographing the Corona 301
Circulars of the Union Observatory, Johannesburg 301
Shellfish and Sewage. By **J. J.** 301
Length Standards and Measurements 302
Pliocene Man 303
Systematic Zoology of the Invertebrata 303
University and Educational Intelligence 304
Societies and Academies 305
Books Received 307
Diary of Societies 308

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